

**Abstract:** This diploma dissertation is dedicated to applications of geometrical mappings. It is intended as a tuitional material specially for students of the third year of the mathematics teachers programm at Mathematical and Physical faculty of Charles University in Prague. The text can be used as a supplementary material for a seminar at secondary school as well. It is based on lectures of the course Geometry II.

Students are familiar with the term mapping already during the lessons at elementary and secondary schools. Therefore in the diploma dissertation we at first give only a summary of basic knowledge about mappings in geometry, in the language of mathematics textbooks.

Next part of this thesis includes theoretical knowledge about mappings in geometry in the form of definitions and propositions together with their proofs. A great part is dedicated to characterization of affine mappings, specially isometries and similarities. At the end circular inversion is explained as an example of a mapping that is not affine. For better imagination the whole text is complemented with a number of figures. Theoretical part is followed by a collection of exercises. Of course, solutions of all exercises are given.